

FACTSHEET

Plant Protection & Quarantine

United States
Department of
Agriculture

Animal and
Plant Health
Inspection
Service

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Mexican Fruit Fly

The Mexican fruit fly (*Anastrepha ludens*) is a destructive pest of fruit. In the United States, the Mexican fruit fly attacks apples, apricots, avocados, grapefruit, mangos, nectarines, peaches, pears, plums, prunes, oranges, and tangerines, as well as other fruits.

The female fly attacks ripening fruit, piercing the soft skin and laying eggs in the puncture. The eggs hatch into larvae (maggots), which feed inside the fruit pulp, ruining the fruit for human consumption.

A native of Mexico, this pest annually infests fruit groves in the lower Rio Grande Valley area of southern Texas and has entered California periodically. To prevent Mexican fruit flies from causing serious damage to fruit in these States, the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) operates control and eradication programs in cooperation with State officials. APHIS also cooperates with Mexico in a program to suppress the pest in northern Mexico.

If the fly were to become established in the United States, losses caused by the pest would amount to about \$1.44 billion over 5 years, according to a 1991 APHIS study. These losses would come in the form of export sanctions, lost markets, treatment costs, and reduced crop yields.

Appearance and Life Cycle

The adult Mexican fruit fly is larger than a housefly. It has green eyes, transparent wings with distinctive "v" marks, and a yellowish-brown body with black specks.

The five stages of the Mexican fruit fly life cycle are:

- The adult fly deposits eggs under the skin of fruit;
- The eggs hatch and produce larvae;
- The larvae feed on the pulp of the host fruit or vegetable and drop to the ground with the fruit;
- The larvae transform into pupae in the soil;
- Adult flies emerge from pupae and mate, completing the cycle.

The adult fly stage can last several months. The larval and pupal stages each last about 3 weeks, but the time can vary, depending on environmental conditions.

Cooperative Efforts With Mexico

In Mexico, Mexican fruit fly is a major pest of mangos, grapefruits, tangerines, and oranges. Certain areas of Mexico are not generally infested but experience sporadic outbreaks.

APHIS and the Mexican government cooperate in a program to suppress Mexican fruit fly and prevent its spread. Activities include monitoring traps, releasing sterile flies, checking fruit at road stations, treating fruit imports, and regulating fruit shipments from quarantined areas.

Cooperation With Texas and California

Each year, the fly enters the lower Rio Grande Valley of southern Texas from Mexico and infests fruit groves. The infestations are probably caused by the movement of infested fruit from Mexico and/or the movement of adults from infested areas of Mexico. Pest populations usually reach detectable levels in the spring, after the majority of marketable fruit has been picked and females have laid eggs in overripe grapefruit or oranges. However, Mexican fruit flies have been detected as early as November or December under conditions favorable to the fly.

To prevent the pest from moving northward out of the Valley and to stop the pest from reaching population levels that are economically damaging, APHIS quarantines infested areas in cooperation with the State of Texas. APHIS also releases sterile Mexican fruit flies in the Valley during the growing season. Sterile flies mate with fertile ones, preventing offspring from developing and keeping populations down. Once crops are harvested, these infestations are suppressed naturally by hot weather and the absence of summer hosts.

Since 1980, California has experienced four Mexican fruit fly infestations; the latest was in 1992 in Los Angeles County. Infestations in California are eradicated by cooperative efforts of APHIS and State officials using survey, regulation, and treatment.

Eradication

When a Mexican fruit fly is captured in a detection trap, additional traps are set in the area to determine if an infestation exists and to locate and define the limits of the infested area. If an infestation exists, Federal and State officials impose a quarantine on all kinds of fruit that can be Mexican fruit fly hosts in the infested area. All potential host material must be inspected and treated before it can be moved out of the quarantine zone. Open-air fruit and vegetable stands must provide protective covers for their produce to prevent it from becoming infested.

Once the pest is contained within an area, eradication can begin. Three kinds of treatments are used:

- *Bait spray.* Using airplanes and ground sprayers, program workers apply a bait spray approved for use by the Environmental Protection Agency. The spray is applied to fruit trees and contains minimum amounts of malathion, an insecticide, and a sweet protein nutrient that attracts the flies. The insecticide is the same one used to kill mosquitoes in residential areas.
- *The sterile insect technique.* This biological control technique consists of mass-rearing Mexican fruit flies, sterilizing them by exposing them to a small amount of irradiation, and releasing them into areas where they mate with wild flies. Such matings do not produce offspring. Eventually the wild population is eliminated through attrition. The Mexican fruit fly rearing facility at Mission, TX, is capable of producing 80 million sterile flies per week.

- *Directed insecticide applications.* Program employees apply insecticides on the soil under host trees. These products kill larvae as they enter the soil to pupate and most of the adults as they later emerge. Application of insecticide on the soil is used only when larvae are detected.

Keeping the Mexican Fruit Fly Out

APHIS administers agricultural quarantine laws to keep the Mexican fruit fly and other foreign pests out of the country and to control domestic pests of limited distribution. Travelers returning to the continental United States from abroad are prohibited from bringing fresh fruits, meats, plants, birds, and plant and animal products that may harbor pests.

For more information about the Mexican fruit fly, write to:

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